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Before the  
Federal Communications Commission  
Washington, D.C. 20554

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In the matter of

Amendment of the Commission's  
Rules to Establish New Personal  
Communications Services

) GEN Docket No. 90-314  
) GEN Docket No. 92-100  
) RM-7140, RM-7175, RM-7617,  
) RM-7618, RM-7760, RM-7782,  
) RM-7860, RM-7977, RM-7978,  
) RM-7979, & RM-7980

Federal Communications Commission  
Office of the Secretary

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Dated: November 9, 1992

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**Federal Communications Commission**  
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	)	RM-7860, RM-7977, RM-7978,
	)	RM-7979, & RM-7980

**Comments of QUALCOMM Inc.**

QUALCOMM Incorporated ("QUALCOMM") hereby submits its comments to the Notice of Proposed Rulemaking (*Notice*) in the above captioned proceeding.<sup>1</sup> QUALCOMM develops, manufactures, markets, licenses and operates advanced communications systems and products based on digital wireless technology. QUALCOMM's primary development program focuses on the implementation of Code Division Multiple Access (CDMA) technology systems and products for use in cellular telephone systems, personal communications services (PCS), low earth orbit (LEO) satellite systems and wireless local loop applications. QUALCOMM is the manufacturer and licensee of the OmniTRACS system, the nation's first operational mobile satellite service.

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<sup>1</sup> *Amendment of the Commission's Rules to Establish New Personal Communications Services, Notice of Proposes Rule Making and Tentative Decision*, GEN Docket No. 90-314, ET docket No. 92-100, RM-7140, RM-7175, RM-7617, RM-7618, RM-7760, RM-7782, RM-7860, RM-7977, RM-7978, RM-7979 & RM-7980 7 FCC Rcd 5676 (1992) [hereinafter *Notice*].

QUALCOMM strongly supports the commission's initiatives in this proceeding. It believes that the Commission's decisions facilitating the rapid deployment of Personal Communications Service (PCS) is critically important if the United States is to maintain its position as world leader in telecommunications. QUALCOMM agrees with the Commission's tentative conclusion that it "should act expeditiously to license U.S. PCS providers because unnecessary delay could threaten the U.S. leadership role in communications technology."<sup>2</sup> In this regard, QUALCOMM urges the Commission to complete this proceeding as quickly as possible and begin licensing service providers as shortly thereafter as possible.

The following are specific responses of QUALCOMM on issues raised by the Commission in the *Notice*.

#### SPECTRUM ALLOCATION:

In the *Notice*, the Commission proposes to allocate three, 15 MHz block pairs in the 2 GHz band for Personal Communications Services. The proposed allocation will support three service providers in market. The Commission proposal is based on its tentative conclusion that "a minimum of three service providers per market will be necessary to ensure a wide and rich range of PCS services that meet consumer needs at reasonable prices."<sup>3</sup>

QUALCOMM believes that an initial allocation of 90 MHz for PCS is adequate to initiate the service. However, QUALCOMM is concerned that the Commission's proposal to divide the spectrum among three or more services providers in each market may limit rather than increase the range of new services that will be offered. In cellular, the Commission struck the proper balance between the need to give each service provider sufficient spectrum and the need to create a competitive market place. The success of its cellular allocation decision speaks for itself. The new PCS licensees will be competing with the existing cellular carriers. QUALCOMM believes that putting two new competitors into the market will strike the

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<sup>2</sup> *Id.*, 5732.

<sup>3</sup> *Id.*, 5690.

proper balance between the need for competition and the need to ensure that the new service providers will have a chance to succeed. In the UK, the government awarded three PCN licenses. The three have since contracted to two and it is not clear when the service will be available. In Germany, the government is planning to grant only one PCN license in the 1800 MHz band. QUALCOMM suggests that the Commission initially award only two licensees and hold the remaining spectrum in reserve. If there is insufficient competition, it can add a third competitor. On the other hand, if competition does develop and the demand for PCS services increases significantly, it can grant additional spectrum to the existing service providers as needed. Premature fragmentation of the market with too many service providers may become counterproductive and hinder the orderly deployment of PCS services.

#### **NUMBER OF LICENSES:**

With regard to the size of the PCS service areas, QUALCOMM agrees that there were too many cellular service areas. The commission created 734 cellular service areas and, as a result, had to issue 1468 licenses. As the Commission observes, "the large number of licenses initially assigned seems to have delayed unnecessarily the assignment process for cellular, perhaps by several years"<sup>4</sup> Because QUALCOMM believes that it is imperative to issue PCS licenses as quickly as possible, it believes that having fewer service areas best serves the public interest. After carefully considering the pros and cons discussed in the *Notice*, QUALCOMM has concluded that Commission Option 2, the 47 Major Trading Areas, is the best choice for PCS.

Option 1, the 487 Basic Trading Areas, is not really distinguishable from the cellular model. The Commission, if it adopts its proposal to issue three licenses in each market, would need to issue 1461 licenses. Regardless of the method used to select the licensees, it is very likely that it would take several years to issue this many licenses. Option 3, the 194 Telephone LATAs, is better in that fewer licenses are required; however, it has little else to recommend it. The cellular carriers have had little technical

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<sup>4</sup> *Id.*, 5699.

difficulty in integrating their networks into the local telephone infrastructure. There is no reason to believe PCS carriers would experience any difficulty either.

Option 4, the nationwide license, has little to recommend it. A nationwide PCS service provider would almost certainly construct a series of interconnected local service areas. With multiple independent service providers the service will come on line much more quickly. In addition, as the cellular has demonstrated, the existence of multiple independent service providers is no bar to the provision of seamless nationwide roaming.

#### **UNLICENSED OPERATIONS:**

The Commission seems to believe that allocation of spectrum for unlicensed operations will foster "rapid introduction of new PCS technologies....." ( paragraph 42, NPRM). Further, the Commission has proposed to set aside 20 MHz of spectrum in the 1910-1930 MHz band for such services. While QUALCOMM is generally in support of this Commission proposal, We are concerned that unlicensed operations for such services as Wireless PABX may encourage proliferation of non-standard PCS devices and fragment the market significantly. If the Commission restricts the use of this band purely for experimental purposes and limits the amount of spectrum to 10 MHz instead of the proposed 20 MHz, it may become a workable compromise.

#### **PCS SUPPORT SPECTRUM:**

QUALCOMM supports the request of APC to implement rule changes in the 37.0-38.6 GHz fixed microwave band which will permit implementation of more efficient channeling plans in the bands already allocated for fixed microwave.

#### **LICENSING MECHANISM:**

In discussing licensing mechanisms, the Commission, after acknowledging that it only "has two options for selecting among mutually exclusive PCS applications, comparative hearings and

lotteries(,)"<sup>5</sup> seeks comment on whether lotteries or competitive bidding would be the most appropriate mechanism for selecting PCS licensees. Again, because QUALCOMM believes that it is imperative that the Commission license new PCS service providers as quickly as possible, it respectfully suggests that the Commission limit itself to deciding between lotteries and comparative hearings. It makes no sense to spend time and resources considering an option that is not available.

QUALCOMM believes the choice between lotteries and hearings is less clear than the Commission acknowledges. The use of comparative hearing results in the Commission receiving the best possible applications from entities that truly are interested in providing service to the public. Lotteries, on the other hand, result in the filing of applications designed to give the Commission as little information as possible and still be acceptable for filing. Most participants in the FCC lotteries are nothing more than spectrum speculators trying to cash in on a government give away. Having said that, QUALCOMM believes that the overriding consideration in choosing a selection method is speed of licensing. There is no doubt that the Commission is correct when it concludes that lotteries are faster than comparative hearings.<sup>6</sup>

The Commission suggests that if it does decide to use lotteries, it must decide whether to use "post card" lotteries or "to require complete financial and technical showings on every application, in order to limit filings to well financed and experienced applicants."<sup>7</sup> QUALCOMM believes the latter method is the better choice. However, it suggests the Commission consider imposing another condition on lottery participants. That is, require each applicant to certify that its technical proposal is its own and it is not being used by any other applicant. This approach would prevent the selling of prepackaged applications by what the Commission refers to as "application mills."<sup>8</sup>

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<sup>5</sup>*Id.*, 5707.

<sup>6</sup> *Id.*, Appendix D.

<sup>7</sup> *Id.*, 5708.

<sup>8</sup> *Id.*, Appendix D.

There is one other important issue that needs to be addressed by the Commission. The Commission is fully aware that many companies, both large and small, have invested significant time and resources in contributing to the development of PCS service. Lotteries will not recognize the efforts of this group. The Commission may want to consider setting aside one license in each market to those who have materially contributed to the evolution of PCS. If more than one Organization qualifies for such preference in any one market, the Commission could conduct expedited comparative hearing or allow for negotiated settlement among competing Organizations. The Commission should require that, in order to qualify for this preference, each participating Organization must submit to the FCC information that clearly demonstrates the Contribution of that Organization to PCS. Further, the Commission may impose restriction that an Organization can qualify for only one license.

## **TECHNICAL FRAMEWORK:**

QUALCOMM supports the Commission's proposal to establish a technical framework that will permit the maximum flexibility in the development of PCS technologies and services. QUALCOMM believes that the approach the Commission adopted for the cellular industry in Docket 87-390<sup>9</sup> should be applied to PCS. The policies adopted in that proceeding have allowed the cellular industry to move rapidly to adopt new digital standards. The PCS industry will very likely act similarly if the Commission adopts the same standards policy. In this regard, QUALCOMM supports the Commission's tentative conclusion that an advisory committee on PCS is not necessary at this time.

## **2 GHz POWER & ANTENNA HEIGHT LIMITS:**

The Commission is proposing a maximum base station power of 10 watts (EIRP) and antenna height of 300 feet above average terrain, and a maximum mobile power of 2 watts (EIRP). The QUALCOMM CDMA system handset operates at an average power

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<sup>9</sup> Amendment of Parts 2 and 22 of the Commission's Rules to Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service, Report and Order, GEN. Docket 87-390, 3 FCC Rcd 7033 (1988), Reconsideration 5 FCC Rcd 1138 (1990).

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level of almost an order of magnitude lower than the maximum proposed by the Commission for PCS operations. We are assuming that the Commission is not requiring the PCS handsets to operate at consistently high power levels close to the maximum.

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